

Remarks

The specification is amended to more explicitly recite the claim of priority.

The instant application incorporates by reference the complete disclosures of all patent applications cited therein (specification at page 68, last paragraph).

Cited in the instant application as originally filed are "*U.S. Patent No. 10/373,609* filed February 24, 2003, entitled Fe/Au Nanoparticles and Methods and *U.S. Patent No. 10/373,600* also filed February 24, 2003 and entitled Magnetic Nanoparticles and Methods for Detection of Biological Materials" (specification at page 1, first paragraph, emphasis added).

U.S. Patent Application Ser. No. 10/373,609 claims the benefit of U.S. Provisional Application No. 60/392,192, filed June 28, 2002, U.S. Provisional Application 60/388,221, filed June 13, 2002, and U.S. Provisional Application 60/358,983, filed February 22, 2002 (specification at page 1, first paragraph; copy included as Exhibit A).

U.S. Patent Application Ser. No. 10/373,600 claims the benefit of U.S. Provisional Application No. 60/392,192, filed June 28, 2002, U.S. Provisional Application 60/388,221, filed June 13, 2002, and U.S. Provisional Application 60/358,983, filed February 22, 2002 (specification at page 1, first paragraph; copy included as Exhibit B).

The specification is accordingly amended to add the recitations of U.S. Provisional Applications 60/358,983, filed February 22, 2002 and 60/388,221, filed June 13, 2002 in the claim of priority.

The specification is further amended to correct the filing date of the international application with respect to which the instant application represents the national stage under 35 U.S.C. §3.71.

It is respectfully submitted that this since U.S. Patent Applications Ser. Nos. 10/373,609 and 10/373,600 were incorporated into the instant patent application by reference as originally filed, no Petition Under 37 C.F.R. § 1.78(a)(6) to Accept an Unintentionally Delayed Claim Under 35 U.S.C. 119(e) for the Benefit of a Prior Filed Provisional Application is or will be required in connection with the amendment of page 1 of the specification to explicitly recite additional provisional applications in the claim of priority.

Third Preliminary Amendment

Page 4 of 4

Applicant(s): Lee et al.

Serial No. 10/519,021

Filed: December 22, 2004

For: MAGNETIC NANOMATERIALS AND METHODS FOR DETECTION OF BIOLOGICAL MATERIALS

Conclusion

The Examiner is invited to contact Applicants' Representatives at the below-listed telephone number, if there are any questions regarding this Preliminary Amendment or if prosecution of this application may be assisted thereby.

Respectfully submitted

By

Muetting, Raasch & Gebhardt, P.A.

P.O. Box 581415

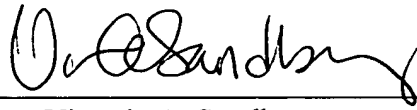
Minneapolis, MN 55458-1415

Phone: (612)305-1220

Facsimile: (612)305-1228

Customer Number 26813

May 3, 2006
Date

By: 
Victoria A. Sandberg
Reg. No. 41,287
Direct Dial (612)305-1226

"Express Mail" mailing label number EV405491789US

Date of Deposit 3 May 2006

I hereby certify that this paper and/or fee is/are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

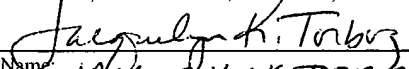

Name: JACQUELYN K. TORBORG

EXHIBIT A

Rec'd PCT/PTO 03 MAY 2006
10/519021 PATENT
290.0046 0101

FE/AU NANOPARTICLES AND METHODS

5

This application claims the benefit of U.S. Provisional Applications Serial Nos. 60/358,983, filed 22 February 2002, 60/388,221, filed 13 June 2002, and 60/392,192, filed 28 June 2002, each of which is incorporated herein by reference in its entirety.

10

RELATED APPLICATION

This application incorporates by reference U.S. Patent No. _____ filed February 23, 2003, entitled Magnetic Nanomaterials and Methods for Detection of Biological Materials.

15

Background of the Invention

Magnetic materials play an important role in modern telecommunication, computing, and information storage technology. Ultra-small magnetic particles are needed for the manufacture of ferro-fluids, i.e. colloidal suspensions of magnetic particles. Particles that are paramagnetic have applications in magnetic refrigeration, color imaging, and biological detection and separation processes. In particular, paramagnetic microparticles that are functionalized with specific binding moieties are increasingly used for cell separation due to the high efficiency, high cell viability, and low cost of this process and have been proposed for use in various schemes for pathogen detection.

25

The magnetic particles presently used in ferro-fluid and bio-magnetic applications suffer from a number of deficiencies that limit their utility. These magnetic carriers make use of magnetic iron oxides usually embedded in a polymer matrix. They are not nano-size (typically micron size or larger), are characterized by low magnetic susceptibility that makes them unsuitable for many applications, and are susceptible to loss of their magnetic properties due to chemical transformation of magnetic iron oxides to diamagnetic Fe₂O₃.

30

EXHIBIT B

PATENT
290.0032 0101

MAGNETIC NANOMATERIALS AND METHODS FOR DETECTION OF BIOLOGICAL MATERIALS

This application claims the benefit of U.S. Provisional Applications Serial Nos. 60/358,983, filed 22 February 2002, 60/388,221, filed 13 June 2002, and 60/392,192, filed 28 June 2002, each of which is incorporated herein by reference in its entirety.

RELATED APPLICATION

This application incorporates by reference U.S. Patent No. _____ filed February 23, 2003, entitled Fe/Au Nanoparticles and Methods.

BACKGROUND OF THE INVENTION

Current pathogen detection technologies are based on techniques that have been developed to support medical diagnoses. Traditionally, protein markers associated with pathogens have been identified using enzyme linked immunological solid-phase assays (ELISA). More recently, polymerase chain reaction coupled to fluorescence amplification have been used to identify genetic tags associated with a specific pathogen. The most advanced detectors based on these technologies can identify pathogenic agents at or below their lethal dose in less than 30 minutes. Unfortunately, these detectors are not in widely available due to the cost of the instrumentation (fully automated instrumentation cost significantly more than \$100,000) and operation (continuous use of an instrument can cost \$10,000 per day and requires a trained technical staff). Further, many pathogens cannot be identified at lethal dose levels.

Magnetic materials are playing an increasingly important role in biotechnology due to the development of paramagnetic microparticles that are functionalized with specific binding moieties. Magnetic separation is known for the isolation of specific cell lines or polynucleotides from a growth medium